PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 1630-6WO CVP	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP 03/00949	International filing date *(day/month/year)* 30.01.2003	Priority date *(day/month/year)* 30.01.2003
International Patent Classification (IPC) or both national classification and IPC C08J9/36, C08J9/36		
Applicant EUROPLASMA		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
29.08.2003	16.06.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Hoffmann, K Telephone No. +49 89 2399-8419

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/00949

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-9 as originally filed

Claims, Numbers

1-18 received on 30.12.2003 with letter of 23.12.2003

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-18
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-18
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-18
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V:

None of the documents of the available prior art discloses a coating method according to independent claim 1.

Reference is made to the following document:

D1: WO 00/14296 A (PALUMBO GIANFRANCO ;AGOSTINO RICCARDO D (IT); LAMENDOLA RITALBA (I) 16 March 2000

Object of the present application is the provision of a method for coating a product with an open cell structure throughout its structure.
D1 is considered as representing the closest available prior art. D1 discloses as well a plasma polymerization process for coating open cell structured substrates (claims 1, 6, 8; example 3).

The process according to present claim 1 differs from D1 by the feature that the product with the open cell structure is degassed before performing the plasma polymerization process. This allows the coating of a foam with a thickness of 100 mm (see Example), whereas the open cell structured product in Example 3 of D1 is only 3 mm thick. It was not obvious for the skilled person to introduce a degassing step before the plasma polymerization step in order to obtain a coating throughout the structure of the product having a thickness up to 100 mm. It thus appears that the claimed subject-matter involves an inventive step.

Annex B

AMENDED CLAIMS

1. Method for providing a coating on the surfaces of a product with an open cell structure throughout its structure, wherein said coating is provided by means of a plasma polymerisation process, **characterised in that** said product with an open cell structure is degassed before performing the plasma polymerisation process.

2. Method according to claim 1, **characterised in that** the degassing is exerted by means of drying the open cell polymer in a drying kiln.

3. Method according to claim 1, **characterised in that** the degassing is exerted within the plasma polymerisation device.

4. Method according to claims 2 or 3, **characterised in that** said degassing is exerted by a temperature between 20 °C and 200 °C.

5. Method according to any one of claims 1 to 4, **characterised in that** the plasma polymer process is performed in a vacuum.

6. Method according to any one of claims, **characterised in that** in the plasma polymer process a monomer vapour is used.

7. Method according to claim 6, **characterised in that** said monomer vapour consists of a monomer or a mixture of monomers containing halogen and/or phosphor and/or nitrogen and/or silicon.

8. Method according to claim 7, **characterised in that** the monomer(s) result from precursor gas(es) or liquid(s) selected from fluor containing compounds

and/or phosphor containing compounds and/or silicon containing compounds and/or nitrogen containing compounds.

9. Method according to claim 8, **characterised in that** the monomer(s) result from precursor(s) selected from CF_4, C_2F_6, C_3F_6, C_3F_8, C_4F_8, C_5F_{12} and/or C_6F_{14} or other saturated or unsaturated fluorcarbons (C_xF_y) or hydrofluorcarbons.

10. Method according to claim 8, **characterised in that** the monomer(s) result from precursor(s) selected from trimethylphosphate, triethylphosphate, tripropylphosphate or other derivates of phosphoric acid.

11. Method according to claim 8, **characterised in that** the monomer(s) result from precursor(s) selected from ethylamine, triethylamine, allylamine or acrylonitrile.

12. Method according to any one of the preceding claims, **characterised in that** said product with an open cell structure is an open cell polymer.

13. Method according to claim 12, **characterised in that** said open cell polymer is a polyurethane, a polyethylene, a melamine or a polystyrene foam.

14. Method according to any one of the claims 1 to 11, **characterised in that** said product with an open cell structure is a sintered open-cell reticulated/foam-like structure.

15. Method according to claim 14, **characterised in that** said sintered open-cell reticulated/foam-like structures are made out of pure metals, alloys or ceramics.

16. Method according to any one of the claims 1 to 15, **characterised in that** open cell structure is a semi-open celled foam.

17. Method according to claim 16, **characterised in that** said semi-open celled foam is an urethane, a polyethylene or a polystyrene semi-open celled foam.

18. Use of a method according to any one of the preceding claims with the goal to obtain a hydrophobe, oleophobe, flame retardant and/or barrier coating on the surfaces of an open cell polymer throughout its polymer structure.